

Moon Phase Comparison

Dec 2010 vs Dec 2011

14 Dec 2010

U.S. Naval Observatory
Astronomical Applications Department

Sun and Moon Data for One Day

The following information is provided for (b) (7)(E) Arizona (b) (7)(E)

Tuesday
14 December 2010 Mountain Standard Time

SUN

Begin civil twilight	6:48 a.m.
Sunrise	7:15 a.m.
Sun transit	12:18 p.m.
Sunset	5:22 p.m.
End civil twilight	5:49 p.m.

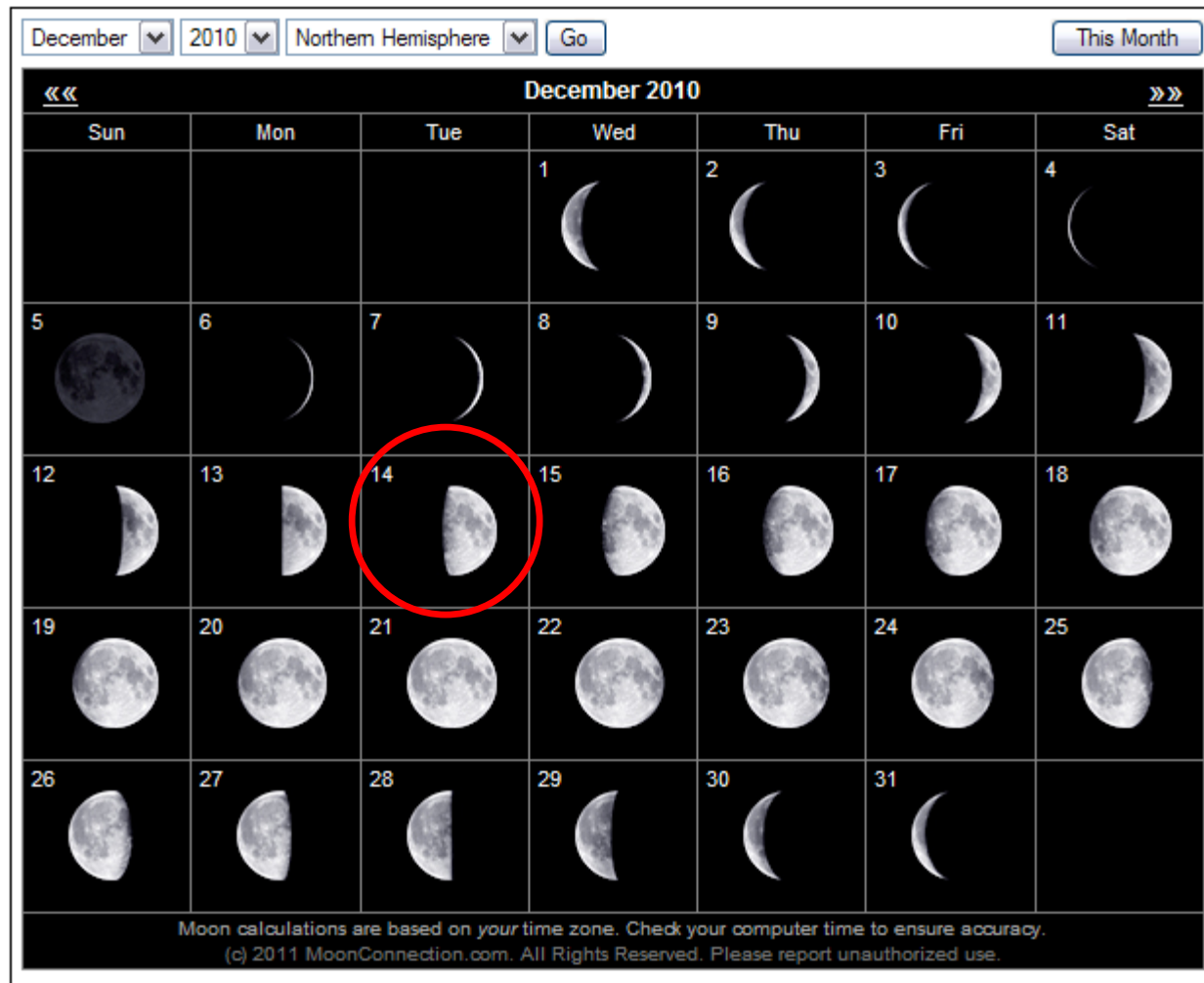
MOON

Moonrise	12:19 p.m. on preceding day
Moonset	12:57 a.m.
Moonrise	12:47 p.m.
Moon transit	7:16 p.m.
Moonset	1:51 a.m. on following day

Phase of the Moon on 14 December: waxing gibbous with 61% of the Moon's visible disk illuminated.

First quarter Moon on 13 December 2010 at 6:59 a.m. Mountain Standard Time.

Dec 2010



www.moonconnection.com accessed 28NOV2011

3 Dec 2011

U.S. Naval Observatory
Astronomical Applications Department

Sun and Moon Data for One Day

The following information is provided for (b) (7)(E) Arizona (b) (7)(E)

Saturday
3 December 2011 Mountain Standard Time

SUN

Begin civil twilight	6:40 a.m.
Sunrise	7:06 a.m.
Sun transit	12:14 p.m.
Sunset	5:21 p.m.
End civil twilight	5:47 p.m.

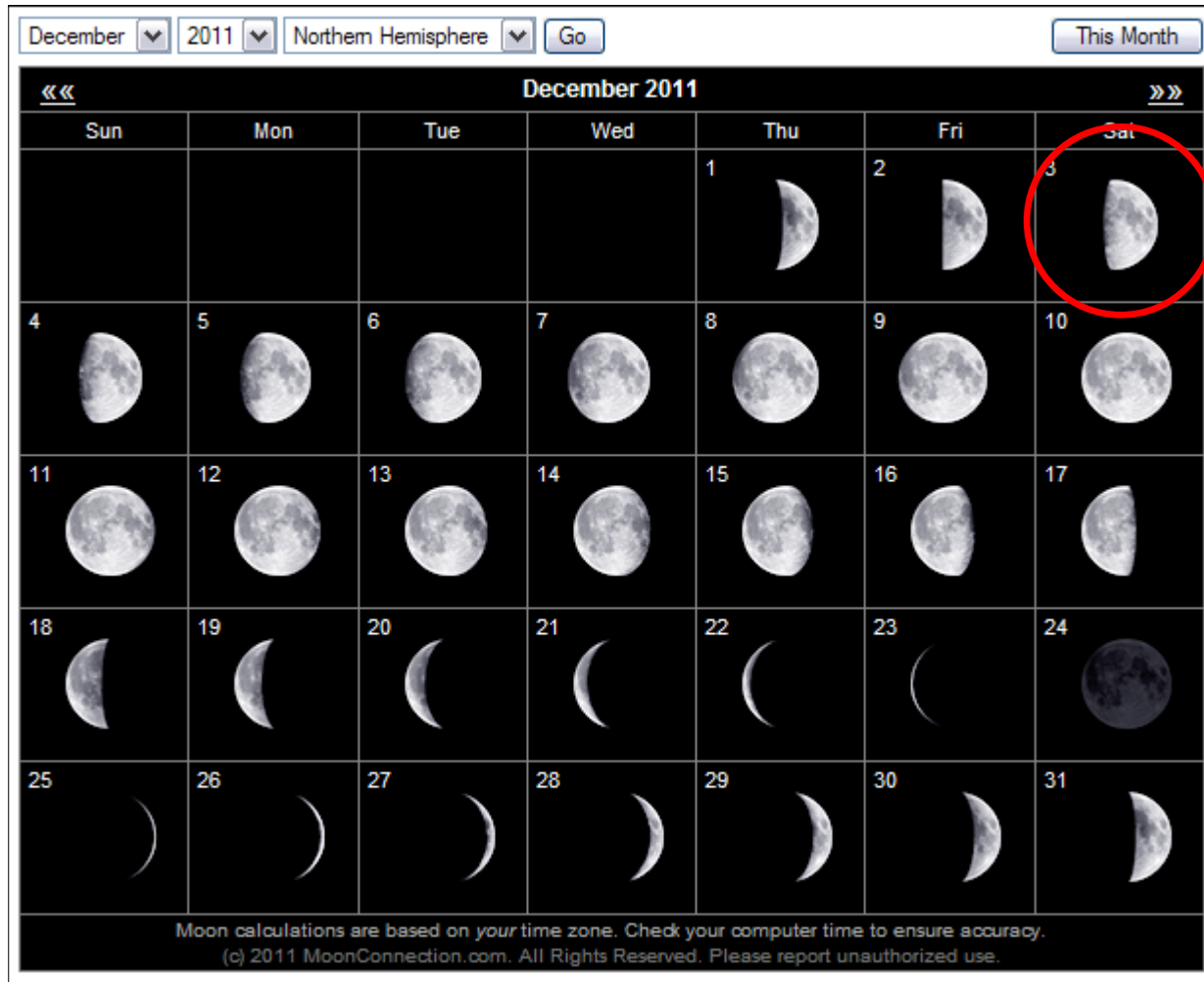
MOON

Moonrise	12:38 p.m. on preceding day
Moonset	12:58 a.m.
Moonrise	1:07 p.m.
Moon transit	7:26 p.m.
Moonset	1:51 a.m. on following day

Phase of the Moon on 3 December: waxing gibbous with 63% of the Moon's visible disk illuminated.

First quarter Moon on 2 December 2011 at 2:53 a.m. Mountain Standard Time.

Dec 2011



www.moonconnection.com accessed 28NOV2011

USNO Legal Considerations-1

- Astronomical Data Used for Litigation
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- The U.S. Naval Observatory (USNO) does not furnish data specifically tailored for litigation. The data describing astronomical phenomena, provided by the USNO, are intended for public information and general use. The data are computed and are not reports of observed or recorded events. The computations assume certain conditions and the data might therefore not be relevant to the facts at issue in a specific case. The data are provided without seal or certification regarding authority, custody, or authenticity, and acceptance by a court is not guaranteed.
- Astronomical data are sometimes needed for civil or criminal court proceedings, especially where there is an issue of the amount of natural illumination available during the incident in question. Both astronomical and meteorological information may be needed in such cases.
- **The USNO does not collect or maintain records or systems of records of astronomical phenomena—for example, observed times of sunrise, sunset, twilight, or Moon phases—that might be useful for litigation.** Such observations are not regularly made by any agency of the U.S. Government, since the relevant data can be computed for past or future dates to sufficient accuracy for all practical purposes. In this sense, astronomical data are different from weather data, which must be observed and recorded.
- The [Astronomical Applications Department](#) of the USNO provides Web pages where these computations can be made online. For example, the Web page titled [Sun and Moon Data for One Day](#) provides sunrise/sunset, moonrise/moonset, and twilight times along with Moon phase for any specific date and place. Other astronomical information can be found in the department's [Data Services](#) pages. There is no charge for these data services. These kinds of astronomical computations can also usually be performed by any observatory, planetarium, university astronomy department, or other competent authority.
- In addition, the USNO can provide, by mail, tables of sunrise/sunset, civil twilight, or moonrise/moonset times for a specific location for an entire year. Each table produced for mailing costs **\$15.00**, which must be prepaid by check or money order. Download the [order form](#), fill it out, and return it to the Naval Observatory (ATTN: N3AA, 3450 Massachusetts Ave. NW, Washington, DC 20392) along with payment. **The tables are provided without seal or certification regarding authority, custody, or authenticity.**
- If a litigant desires a signed letter or some other type of "certified" document containing the calculated data, there are several private-sector sources that can be used. Resources that can assist you in finding information and expert testimony are listed below under [Forensic Services](#).
- For further information on this subject see:
- [Federal Register](#), Vol. 56, No. 7, 10 January 1991, Notices, p. 998.
- [Code of Federal Regulations](#), Title 32, part 725 (32 CFR 725).
- "Release of Official Information for Litigation Purposes and Testimony by Department of the Navy (DoN) Personnel," [SECNAVINST 5820.8A](#).
- In particular, attorneys should review the last reference prior to making any requests for information or testimony. The instruction includes this statement: "DoN [(Department of Navy)] personnel... shall not provide, with or without compensation, opinion or expert testimony concerning official DoD [(Department of Defense)] information, subjects, personnel, or activities, except on behalf of the United States or a party represented by the Department of Justice, or with the written special authorization required by this instruction."

USNO Legal Considerations-2

- **Weather information** is not available from the USNO. Official weather records (cloud cover, precipitation, etc.) compiled throughout the United States are available from:
- [NOAA National Climatic Data Center](#)
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800
- **Civil time** (zone time, daylight time) legally in effect at locations within the United States is determined by the Secretary of Transportation. Information may be obtained from:
- Office of the General Counsel
Department of Transportation
Room 10424
400 - 7th Street SW
Washington, D.C. 20590
Phone: (202) 366-4723
- **FORENSIC SERVICES**
- The following are sources of information that can assist in locating expert support for forensic inquiry, interpretation of data, and litigation. This list is not exhaustive and is not to be construed as an endorsement by the U.S. Government of any services, or of companies or individuals recommended by the services.
- The **Technical Advisory Service for Attorneys** refers experts for a range of forensic and consulting services. Presently offers 22,000 experts in 5500 categories. Telephone consultation advised.
- Technical Advisory Service for Attorneys
1166 Dekalb Pike
Blue Bell, PA 19422-1853
Phone: (610) 275-8272 or (800) 523-2319
<http://www.tasanet.com/>
- The **Commercial Weather Services Association** publishes a directory of U.S. and international commercial weather companies and the services they provide (listed companies - 49; forensic service and expert testimony - 28). Telephone assistance is available.
- Commercial Weather Services Association
1600 Duke Street
Alexandria, VA 22314
Phone: (703) 519-0390
- The **National Association of Professional Accident Reconstruction Specialists** can provide information on forensic issues arising out of various types of accidents.
- NAPARS
P.O. Box 65
Brandywine, MD 20613-0065
Phone: (301) 843-1371
<http://www.napars.org/>
- The **Directory of Certified Consulting Meteorologists** is a listing of weather experts by specialty and by state/country. Includes forensic - 44, expert testimony - 73. Published by the AMS.
- American Meteorological Society
45 Beacon Street
Boston, MA 02108-3693
Phone: (617) 227-2425 to obtain directory
<http://www.ametsoc.org/>
- **Astronomical information** can often be obtained locally from astronomers or celestial navigation instructors at public and private schools, colleges, observatories, planetariums and maritime academies.
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